

## DETAILED ACTION

### *Response to Arguments*

1. Applicant's arguments filed on 01/19/2010, regarding the 35 USC § 101 rejection to claims 11 and 42-43, have been fully considered but they are not persuasive.

On page 2 of the Applicant's Response, applicant argues that "*Regarding the rejection of Claims 11, 42, and 43 under 35 U.S.C. §101, Applicant refers the Examiner's attention to the BPAI decision of September 14, 2009, in Ex Parte Azuma, in which the Board found that the Examiner erred in finding that the cited claims to a computer readable medium in that case implicated the use of carrier waves, when the specification only taught tangible mediums such as a server, a floppy drive, a main memory, and a hard disk.*"

*Since the Applicant's specification similarly discloses central processing unit (CPU), a Read Only Memory (ROM), for storing various programs, and a Random Access Memory (RAM) as a work memory for the CPU,<sup>1</sup> Applicant submits that the claimed "computer readable medium on which is recorded a program which, when executed in a processor, directs the processor to perform a process" is a non-transitory tangible storage medium.*

*While there are data packets transmitted in Applicant's invention, the data packets do not direct the computer to perform the recited steps. Thus, when considered as a whole, Claims 11, 42, and 43 define statutory subject matter and meet the requirements of the Interim August 2009 PTO guidelines for statutory subject matter ". In response, the Examiner respectfully disagrees.*

Normally, the claim drawn to a computer readable storage medium would be a tangible thing and would be statutory subject matter, however, the specification is silent define any evidence to the contrary and given the broadest reasonable interpretation, the scope of a "computer readable medium" covers a signal per se. A transitory signal does not fall within the definition of a process, machine, manufacture, or a composition of matter; therefore, claims 11 and 42-43 do not fall within a statutory category.

The specification exemplifies the "central processing unit (CPU), a Read Only Memory (ROM), for storing various programs, and a Random Access Memory (RAM) as a work memory for the CPU (see Spec. page 17, lines 20-22), and silent define any evidence to the contrary and given the broadest reasonable interpretation. No-where in the specification discloses any term

"computer readable medium". It is clearly showed that the claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The claims 11 and 42-43 are drawn to a computer readable medium comprising stored data. The specification exemplifies the "central processing unit (CPU), a Read Only Memory (ROM), for storing various programs, and a Random Access Memory (RAM) as a work memory for the CPU (see Spec. page 17, lines 20-22) and no other information discloses about the meaning or scope of a "computer readable medium". The broadest reasonable interpretation of the claim in light of specification concludes that the claim as a whole covers a transitory signal. A transitory signal does not fall within the definition of a process, machine, manufacture, or a composition of matter; therefore, claims 11 and 42-43 do not fall within a statutory category.

2. Applicant's arguments filed 01/19/2010 have been fully considered but they are not persuasive.

On page 3 of the Applicant's Response, applicant argues that *"Applicant submits that the plurality of routes referred to by the Examiner in Gutierrez is a plurality of routes to different nodes, and is not (as defined by Claim 1) a plurality of routes to a first communication terminal, created by the claimed route creation means. For example, the table in Figure 6 of Gutierrez (while showing a plurality of routes) shows only a single route to each node"*, with the corresponding teaching indicating the arguments and the arts references below, the Examiner respectfully disagrees.

In the last Office Action, the Examiner cited that Gutierrez teaches route management means for storing and managing the plurality of routes created by the route creation means (Abstract; paragraphs [0010], [0015], [0022], [0024], [0031]-[0032]). Especially, Gutierrez teaches storing a plurality of complete communications routes for at least some of the network devices (paragraph [0031]). Gutierrez clearly teaches storing a plurality routes, not a single route to each node, therefore, Gutierrez discloses storing and managing the plurality of routes created by the route creation means. During patent examination, the claims must be given their broadly reasonable interpretation. See MPEP 2111. The term "storing and managing the plurality of routes created by the route creation means" is broadly claimed, therefore, it is broadly interpreted.

*Claim Rejections - 35 USC § 101*

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 11 and 42-43 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The claims are not to a process, machine, manufacture, or composition of matter. In the state of the art, transitory signals are commonplace as a medium for transmitting computer instructions and thus, in the absence of any evidence to the contrary and given the broadest reasonable interpretation, the scope of a "computer readable medium" covers a signal per se. A transitory signal does not fall within the definition of a process, machine, manufacture, or composition of matter; therefore, claims 11 and 42-43 do not fall within a statutory category.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gutierrez (US 2004/0233855; Cited in PTO-892 Part of Paper No. 20090401) in view of Cain (US 2004/0029553; Cited in PTO-892 Part of Paper No. 20091020).

Regarding claim 1, Gutierrez discloses a communication system which comprises a plurality of communication terminals (Abstract; Fig. 3, references ND0 through ND11; paragraphs [0064]) and based on a message originated from a first communication terminal to a third communication terminal via a second communication terminal (paragraphs [0022], [0024], [0027], [0029], [0058]), the second and third communication terminals create a route to the first communication terminal (paragraphs [0027]-[0028], e.g., A complete communication route between the first ad-hoc network device and the ad-hoc network coordinator may be defined by the first ad-hoc network device, the second ad-hoc network device, the third ad-hoc network device and the ad-hoc network coordinator) and communication is made between the first and third communication terminals via the created route (paragraphs [0027]-[0029], [0169], e.g., The complete communication route may be defined by the ad-hoc network coordinator, the first ad-hoc network device, the second ad-hoc network device and the third ad-hoc network device), wherein the second and third communication terminals comprise:

route management means for storing and managing the plurality of routes created by the route creation means (Abstract; paragraphs [0010], [0015], [0022], [0024], [0031]-[0032], e.g., storing a plurality of complete communications routes for at least some of the network devices), and

the route management means establishes one of the created routes as a communication route to the first communication terminal and changes the communication route to any of the plurality of routes depending on needs (Table 1; paragraphs [0042], [0046], [0111]-[0115], e.g., the routes chosen are adapted to reflect changes in the traffic pattern).

Gutierrez fails to specifically disclose route creation means for creating a plurality of the routes to the first communication terminal by duplicatively receiving the message.

However, Cain discloses the method includes routing message data from a source node to a destination node in a mobile ad hoc network. Cain specifically discloses creating a plurality of the routes to the first communication terminal by duplicatively receiving the message (paragraphs [0014], [0017], [0032], [0041]-[0042], [0046], e.g., Distributing the message data may include distributing duplicate message data along the plurality of discovered routes for improved reliability, and/or distributing different portions of the message data along each of the plurality of discovered routes for improved timeliness).

Therefore, taking the teachings of Gutierrez in combination of Cain as a whole, it would have been obvious to one having ordinary skill in the art at the time of the invention by applicant to create a plurality of the routes to the first communication terminal by duplicatively receiving the message for advantages of improving reliability.

Regarding claim 2, Gutierrez in combination with Cain discloses the communication system according to claim 1 above, wherein the route management means specifies a priority for each of the created routes based on a specified criterion and preferentially establishes the route with the high priority as the communication route (Gutierrez: paragraphs [0066], [0094], [0158], e.g., this “best” neighbor ND 14 will have the highest priority in the upstream transfer mode 36).

Regarding claims 3 and 10, Gutierrez discloses a communication terminal device and a control method for a communication terminal device, comprising:

transmission means for transmitting a specified message assigned with an intended first communication terminal as transmission destination (paragraphs [0078], [0081], e.g., the NC24 may select the optimum way to transfer the data to the final ND 14);

route management means for storing the plurality of routes created by the route creation means and establishing one of the plurality of routes as a communication route (Abstract; paragraphs [0010], [0015], [0022], [0024], [0031]-[0032], e.g., storing a plurality of complete communications routes for at least some of the network devices); and

communication means for communicating with the first communication terminal via the established communication route (paragraphs [0078], [0081]),

wherein the route management means switches the communication route to any of the plurality of routes depending on needs (paragraphs [0042], [0068], [0111]-[0115], e.g., the routes chosen are adapted to reflect changes in the traffic pattern).

Gutierrez fails to specifically disclose route creation means for duplicatively receiving a response to the message originated from the first communication terminal and transferred via a

second communication terminal to create a plurality of routes up to the first communication terminal.

However, Cain discloses the method includes routing message data from a source node to a destination node in a mobile ad hoc network. Cain specifically discloses route creation means for duplicatively receiving a response to the message originated from the first communication terminal and transferred via a second communication terminal to create a plurality of routes up to the first communication terminal (paragraphs [0014], [0017], [0032], [0041]-[0042], [0046], e.g., Distributing the message data may include distributing duplicate message data along the plurality of discovered routes for improved reliability, and/or distributing different portions of the message data along each of the plurality of discovered routes for improved timeliness).

Therefore, taking the teachings of Gutierrez in combination of Cain as a whole, it would have been obvious to one having ordinary skill in the art at the time of the invention by applicant to create a plurality of the routes to the first communication terminal by duplicatively receiving the message for advantages of improving reliability.

Regarding claim 4, Gutierrez in combination with Cain discloses the communication terminal device according to claim 3 above, wherein the communication means starts communication with the first communication terminal after the route creation means receives the first response and a specified time interval elapses, or after reception of a specified number of the responses from the first communication terminal (Gutierrez: paragraphs [0010], [0013], [0023], e.g., upon initialization, engage in a neighbor discovery process, in which the best multi hop neighbor is discovered).

Regarding claim 5, Gutierrez in combination with Cain discloses the communication terminal device according to claim 3 above, wherein the route management means specifies a priority for each of the created routes based on a specified criterion and preferentially establishes the route with the high priority as the communication route (Gutierrez: paragraphs [0066], [0094], [0158], e.g., this “best” neighbor ND 14 will have the highest priority in the upstream transfer mode 36).

Regarding claim 6, Gutierrez in combination with Cain discloses the communication terminal device according to claim 3 above, wherein the route management means lists to manage specified information about the created routes (Gutierrez: paragraphs [0128], [0135], noted tables 2, 4, and 6).

Regarding claim 7, Gutierrez in combination with Cain discloses the communication terminal device according to claim 4 above, wherein the route management means dynamically changes the criterion depending on a communication situation of the route and reassigns the priority to the created route (Gutierrez: paragraphs [0010]-[0011], [0023], [0078], [0094], [0106], e.g., Once the routing process determines the best route, the packet is sent to the MAC layer 4 using its data services).

Regarding claim 8, Gutierrez in combination with Cain discloses the communication terminal device according to claim 3 above, wherein the route management means deletes a route which belongs to the plurality of created routes and is unused for a specified time period (Gutierrez: paragraph [0070], e.g., (4) maintaining statistics and routing information about all nodes connected to the network 23 (i.e., the NC 24 most typically has more memory than any other node)).



Regarding claim 9, Gutierrez in combination with Cain discloses the communication terminal device according to claim 3 above, wherein, when the created routes exceed a predetermined maximum value, the route management means successively deletes the routes in a chronological order (Cain: paragraphs [0015], [0033], [0038], [0046], e.g., if the number of discovered routes falls below a certain threshold, then the source node 1 may again transmit a route request RREQ to discover new routing to the destination node 4 ).

Therefore, taking the teachings of Gutierrez in combination of Cain as a whole, it would have been obvious to one having ordinary skill in the art at the time of the invention by applicant to have the route management means successively deletes the routes in a chronological order when the routes exceed a predetermined maximum threshold value for advantages of improving reliability.

Claim 11 is drawn to a computer readable medium on which is recorded a program which, when executed in a processor, directs the processor to perform a process comprising code means for generating steps of claim 3. Therefore, the same rationale applied to claim 3 applies. In addition, Gutierrez/Cain inherently discloses a computer program product, i.e., given that Gutierrez discloses a process (paragraph [0040], [0049], [0098]), the process would be implemented by a processor that requires a computer program product, e.g., a RAM, to function.

Regarding claims 12-13, Gutierrez discloses a communication terminal device and a control method for a communication terminal device which relays a message originated from a first communication terminal to a second communication terminal (paragraph [0070], e.g., relaying messages between nodes) and creates a route to the first communication terminal based on the message (paragraph [0079], e.g., every time a message, such as 32, is passed from one ND

14 (e.g., ND11) to another ND 14 (e.g., ND9), the identifiers (e.g., addresses) associated with each relaying ND 14 are added to the message, thereby creating a source route, as shown by messages 32,40,42), the communication terminal device comprising:

route management means for storing and managing the plurality of routes created by the route creation means (Abstract; paragraphs [0010], [0015], [0022], [0024], [0031]-[0032], e.g., storing a plurality of complete communications routes for at least some of the network devices),

wherein the route management means establishes one of the created routes as a communication route to the first communication terminal and changes the communication route to any of the plurality of routes depending on needs (Table 1; paragraphs [0042], [0046], [0111]-[0115], e.g., the routes chosen are adapted to reflect changes in the traffic pattern).

Gutierrez fails to specifically disclose route creation means for creating a plurality of the routes to the first communication terminal by duplicatively receiving the message.

However, Cain discloses the method includes routing message data from a source node to a destination node in a mobile ad hoc network. Cain specifically discloses creating a plurality of the routes to the first communication terminal by duplicatively receiving the message (paragraphs [0014], [0017], [0032], [0041]-[0042], [0046], e.g., Distributing the message data may include distributing duplicate message data along the plurality of discovered routes for improved reliability, and/or distributing different portions of the message data along each of the plurality of discovered routes for improved timeliness).

Therefore, taking the teachings of Gutierrez in combination of Cain as a whole, it would have been obvious to one having ordinary skill in the art at the time of the invention by applicant

to create a plurality of the routes to the first communication terminal by duplicatively receiving the message for advantages of improving reliability.

Regarding claim 14, Gutierrez discloses a communication system which comprises a plurality of communication terminals (Abstract; Fig. 3, references ND0 through ND11; paragraphs [0064]), and based on a first message originated from a first communication terminal to a third communication terminal via a second communication terminal and a second message originated from a first communication terminal in response to the first message to the first communication terminal via the second communication terminal (paragraphs [0022], [0024], [0027], [0029], [0058]), creates routes to the first through third communication terminals by using the first through third communication terminals to communicate between the first and third communication terminals via the created routes (paragraphs [0027]-[0029], [0169], e.g., The complete communication route may be defined by the ad-hoc network coordinator, the first ad-hoc network device, the second ad-hoc network device and the third ad-hoc network device),

wherein the first communication terminal has route request transmission means for transmitting a route request composed of a request for the route to be used for the communication with the third communication terminal (Abstract; paragraphs [0010], [0015], [0022], [0024], [0031]-[0032], e.g., storing a plurality of complete communications routes for at least some of the network devices), and

route establishment means for establishing a communication route between the first and third communication terminals using a route which belongs to the plurality of routes created by the route creation means and satisfies the route request transmitted from the first communication

terminal (Table 1; paragraphs [0042], [0046], [0111]-[0115], e.g., the routes chosen are adapted to reflect changes in the traffic pattern).

Gutierrez fails to specifically disclose the second and third communication terminals have; route creation means for duplicatively receiving the first or second message to create the plurality of routes to the first or third communication terminal.

However, Cain discloses the method includes routing message data from a source node to a destination node in a mobile ad hoc network. Cain specifically discloses creating a plurality of the routes to the first communication terminal by duplicatively receiving the message (paragraphs [0014], [0017], [0032], [0041]-[0042], [0046], e.g., Distributing the message data may include distributing duplicate message data along the plurality of discovered routes for improved reliability, and/or distributing different portions of the message data along each of the plurality of discovered routes for improved timeliness).

Therefore, taking the teachings of Gutierrez in combination of Cain as a whole, it would have been obvious to one having ordinary skill in the art at the time of the invention by applicant to create a plurality of the routes to the first communication terminal by duplicatively receiving the message for advantages of improving reliability.

Regarding claim 15, Gutierrez in combination with Cain discloses the communication system according to claim 14 above, the route request transmission means for the first communication terminal transmits the route request corresponding to an attribute of data to be transmitted to the third communication terminal according to the communication (paragraphs [0100]-[0102], [0123]-[0125]; Table 1, see PIBAttribute Value).

Regarding claim 16, Gutierrez in combination with Cain discloses the communication system according to claim 14 above, wherein the third communication terminal has response origination means for originating a response corresponding to the route request when the route request is received (Gutierrez: Fig. 9; reference “NK-DATA.CONFIRM”; paragraphs [0069], [0096], [0107], [0110]);

wherein the first communication terminal has route establishment means for establishing the communication route to the third communication terminal using the route satisfying the route request based on the response transmitted from the third communication terminal via the second communication terminal (Gutierrez: paragraphs [0022], [0024], [0027], [0029], [0058]), and

the route establishment means for the first through third communication terminals individually establishes the communication route from the first communication terminal to the third communication terminal and the communication route from third communication terminal to the first communication terminal so as to be different from each other based on the route request and the response to the route request (Gutierrez: paragraph [0076], e.g., The NC 24 and NDs 14 employ different ways to route messages in the network 23. The NDs 14 follows the localized routing principle, while the NC 24 follows the centralized routing principle).

Regarding claim 17, Gutierrez in combination with Cain discloses the communication system according to claim 14 above, wherein route request transmission means for the first communication terminal transmits the route request to update lifetime of the route (Gutierrez: paragraphs [0008], [0010], [0085], [0090]-[0091], [0094]-[0095], e.g., route update), and

the route establishment means for the second and third communication terminals update the lifetime for the corresponding route in accordance with the route request (Gutierrez: paragraphs [0008], [0010], [0085], [0090]-[0091], [0094]-[0095]).

Regarding claim 18, Gutierrez in combination with Cain discloses the communication system according to claim 14 above, wherein, when retransmitting the route request, the route request transmission means for the first communication terminal changes to relieve conditions specified as the route request (Gutierrez: paragraph [0083], e.g., The failure of one ND 14 to acknowledge a "Route Error" message causes the relaying node to discard the packet. A node that could not relay a "Route Error" message does not send back another "Route Error" message, since that would create a loop condition).

Regarding claims 19, 22, and 25, Gutierrez discloses a communication terminal device and a control method comprising:

transmission means for transmitting a specified first message assigned with an intended first communication terminal as transmission destination (paragraphs [0027]-[0029], [0169], e.g., The complete communication route may be defined by the ad-hoc network coordinator, the first ad-hoc network device, the second ad-hoc network device and the third ad-hoc network device);

route request transmission means for using the first communication terminal as transmission destination and for transmitting a route request composed of a request for one of the routes to be used for communication with the first communication terminal (Table 1; paragraphs [0042], [0046], [0111]-[0115], e.g., the routes chosen are adapted to reflect changes in the traffic pattern).

Gutierrez fails to specifically disclose route creation means for creating a plurality of routes to the first communication terminal.

However, Cain discloses the method includes routing message data from a source node to a destination node in a mobile ad hoc network. Cain specifically discloses creation means for creating a plurality of routes to the first communication terminal (paragraphs [0014], [0017], [0032], [0041]-[0042], [0046], e.g., Distributing the message data may include distributing duplicate message data along the plurality of discovered routes for improved reliability, and/or distributing different portions of the message data along each of the plurality of discovered routes for improved timeliness).

Therefore, taking the teachings of Gutierrez in combination of Cain as a whole, it would have been obvious to one having ordinary skill in the art at the time of the invention by applicant to create means for creating a plurality of routes to the first communication terminal e for advantages of improving reliability.

Regarding claim 20, Gutierrez in combination with Cain discloses the communication terminal device according to claim 19 above, wherein the route request transmission means transmits the route request corresponding to an attribute of data to be transmitted to the first communication terminal (Gutierrez: paragraphs [0100]-[0102], [0123]-[0125]; Table 1, see PIBAttribute Value).

Regarding claim 21, Gutierrez in combination with Cain discloses the communication terminal device according to claim 19 above, wherein, when retransmitting the route request, the route request transmission means changes to relieve a request for the route (Gutierrez: paragraph [0083], e.g., The failure of one ND 14 to acknowledge a "Route Error" message causes the

relaying node to discard the packet. A node that could not relay a "Route Error" message does not send back another "Route Error" message, since that would create a loop condition).

Regarding claim 23, Gutierrez in combination with Cain discloses the communication terminal device according to claim 22, wherein the route establishment means individually establishes the communication route from the first communication terminal to the second communication terminal and the communication route from second communication terminal to the first communication terminal so as to be different from each other based on the route request and a response originated from the second communication terminal in response to the route request (Gutierrez: paragraphs [0076]-[0079]).

Regarding claim 24, Gutierrez in combination with Cain discloses the communication terminal device according to claim 22, wherein the route establishment means updates lifetime of the corresponding route based on the route request (Gutierrez: paragraphs [0008], [0010], [0085], [0090]-[0091], [0094]-[0095], e.g., route update).

Regarding claim 24, Gutierrez discloses a communication terminal device comprising:  
route establishment means for establishing a communication route to the first communication terminal using the route which belongs to the plurality of routes created by the route creation means and satisfies the route request based on a route request originated from the first communication terminal and composed of a request for the route to be used for communication with itself (Table 1; paragraphs [0042], [0046], [0111]-[0115], e.g., the routes chosen are adapted to reflect changes in the traffic pattern).



Gutierrez fails to specifically disclose route creation means for duplicatively receiving a first message originated from a first communication terminal to itself as destination to create a plurality of routes to the first communication terminal.

However, Cain discloses the method includes routing message data from a source node to a destination node in a mobile ad hoc network. Cain specifically discloses route creation means for duplicatively receiving a first message originated from a first communication terminal to itself as destination to create a plurality of routes to the first communication terminal (paragraphs [0014], [0017], [0032], [0041]-[0042], [0046], e.g., Distributing the message data may include distributing duplicate message data along the plurality of discovered routes for improved reliability, and/or distributing different portions of the message data along each of the plurality of discovered routes for improved timeliness).

Therefore, taking the teachings of Gutierrez in combination of Cain as a whole, it would have been obvious to one having ordinary skill in the art at the time of the invention by applicant to have route creation means for duplicatively receiving a first message originated from a first communication terminal to itself as destination to create a plurality of routes to the first communication terminal for advantages of improving reliability.

Regarding claim 27, Gutierrez discloses a communication system comprising:

a plurality of communication terminals (Abstract; Fig. 3, references ND0 through ND11; paragraphs [0064]), and based on a message originated from a first communication terminal to a third communication terminal via a second communication terminal (paragraphs [0022], [0024], [0027], [0029], [0058]), creates routes to the first communication terminal by using the second and third communication terminals to communicate between the first and third communication

terminals via the created route (paragraphs [0027]-[0029], [0169], e.g., The complete communication route may be defined by the ad-hoc network coordinator, the first ad-hoc network device, the second ad-hoc network device and the third ad-hoc network device),

wherein the second communication terminal has state notification means for detecting a possible disconnection state in terms of a disconnection symptom for communication on the route as an upstream side for the message and notifying the possible disconnection state to the first communication terminal (paragraphs [0083], [0090], [0094], e.g., the ND 14 sends back a special "Route Error" message 58, which informs the preceding ND 14 (e.g., ND9) (or the NC 24) that the routing operation failed).

Gutierrez fails to specifically disclose the first communication terminal has message origination means for generating the message using a creation condition according to a route other than the route matching the possible disconnection state notified from the second communication terminal and originating the message.

However, Cain discloses the first communication terminal has message origination means for generating the message using a creation condition according to a route other than the route matching the possible disconnection state notified from the second communication terminal and originating the message (paragraphs [0015], [0018], [0033], e.g., at the source node, intermediate nodes and/or the destination node, detecting whether the node can continue to support the route request and, if not, generating an error notification for a failed route. Upon receiving the error notification, the source node will purge the failed route from the discovered routes, and preferably distribute message data among remaining discovered routes).

Therefore, taking the teachings of Gutierrez in combination of Cain as a whole, it would have been obvious to one having ordinary skill in the art at the time of the invention by applicant to have the first communication terminal has message origination means for generating the message using a creation condition according to a route other than the route matching the possible disconnection state notified from the second communication terminal and originating the message for advantages of improving reliability.

Regarding claim 28, Gutierrez in combination with Cain discloses the communication system according to claim 27 above, wherein the state notification means detects the possible disconnection state based on at least two different communication criteria (Gutierrez: Fig. 6; paragraphs [0073], [0095], see updates the parameters LinkQuality 64 when a Route Error message received).

Regarding claim 29, Gutierrez in combination with Cain discloses the communication system according to claim 27 above, wherein the state notification means limits the number of the possible disconnection states notified to the first communication terminal at a specified ratio (Gutierrez: paragraph [0093], e.g., If the function value falls below a predetermined threshold, then that node is removed from the routing table 30).

Regarding claim 30, Gutierrez in combination with Cain discloses the communication system according to claim 27 above, wherein the message origination means generates the message using a creating condition according to the route in a better condition than the possible disconnection state (Gutierrez: paragraphs [0023], [0076], [0085], e.g., determining the “best” suitable relaying neighbor ND 14).

Regarding claim 31, Gutierrez in combination with Cain discloses the communication system according to claim 27 above, wherein the message origination means measures the number of notifications of the possible disconnection state notified from the second communication terminal on a unit time basis and, when a measurement result exceeds a specified number of times (Cain: paragraphs [0015], [0033], [0038], [0046]), generates the message using a creation condition according to a route other than the route (Gutierrez: paragraph [0152]-[0153], e.g., a peer node cannot relay a message to a particular address because a maximum number of addresses was exceeded).

Therefore, taking the teachings of Gutierrez in combination of Cain as a whole, it would have been obvious to one having ordinary skill in the art at the time of the invention by applicant to have the message origination means measures the number of notifications of the possible disconnection state notified from the second communication terminal on a unit time basis and, when a measurement result exceeds a specified number of times for advantages of improving reliability.

Regarding claim 32, Gutierrez in combination with Cain discloses the communication system according to claim 31 above, wherein the message origination means measures the number of notifications of the possible disconnection state notified from the second communication terminal on a unit time basis and, when a measurement result exceeds a specified number of times (Cain: paragraphs [0015], [0033], [0038], [0046]), generates the message using a creation condition according to a route in a better state than statistical results of the possible disconnection states corresponding to the number of notifications (Gutierrez: paragraphs [0070],

e.g., maintaining statistics and routing information about all nodes connected to the network 23 (i.e., the NC 24 most typically has more memory than any other node)).

Therefore, taking the teachings of Gutierrez in combination of Cain as a whole, it would have been obvious to one having ordinary skill in the art at the time of the invention by applicant to have the message origination means measures the number of notifications of the possible disconnection state notified from the second communication terminal on a unit time basis and, when a measurement result exceeds a specified number of times for advantages of improving reliability.

Regarding claims 33 and 36, Gutierrez discloses a communication terminal device and a communication method for a communication terminal device which mediates between a first communication terminal as a transmission origin and a second communication terminal as a transmission destination and based on a message originated from the first communication terminal to the second communication terminal (paragraphs [0022], [0024], [0027], [0029], [0058]), creates routes to the first communication terminal (paragraphs [0027]-[0029], [0169], e.g., The complete communication route may be defined by the ad-hoc network coordinator, the first ad-hoc network device, the second ad-hoc network device and the third ad-hoc network device), the communication method comprising:

a first step of detecting a possible disconnection state in terms of a disconnection symptom for communication on the routes as an upstream side for the message (paragraphs [0083], [0090], [0094], e.g., the ND 14 sends back a special "Route Error" message 58, which informs the preceding ND 14 (e.g., ND9) (or the NC 24) that the routing operation failed); and

Gutierrez fails to specifically disclose a second step of notifying the possible disconnection state detected by the first step to the first communication terminal.

However, Cain discloses a second step of notifying the possible disconnection state detected by the first step to the first communication terminal (paragraphs [0015], [0018], [0033], e.g., at the source node, intermediate nodes and/or the destination node, detecting whether the node can continue to support the route request and, if not, generating an error notification for a failed route. Upon receiving the error notification, the source node will purge the failed route from the discovered routes, and preferably distribute message data among remaining discovered routes).

Therefore, taking the teachings of Gutierrez in combination of Cain as a whole, it would have been obvious to one having ordinary skill in the art at the time of the invention by applicant to have a second step of notifying the possible disconnection state detected by the first step to the first communication terminal for advantages of improving reliability.

Regarding claim 34 is rejected with the same reasons set forth in claim 28.

Regarding claim 35 is rejected with the same reasons set forth in claim 29.

Regarding claims 37 and 41, Gutierrez discloses a communication terminal device and communication method for a communication terminal device which, based on a message originated from itself to a first communication terminal as a transmission destination, creates routes to itself by means of a second communication terminal mediating between itself and a first communication terminal and communicates with first communication terminal via one of the created routes (paragraphs [0078], [0081],[0094]), the communication terminal device comprising:

message origination means for, when the second communication terminal notifies a possible disconnection state in terms of a disconnection symptom for communication on a first route upstream of the message (paragraphs [0083], [0090], [0094], e.g., the ND 14 sends back a special "Route Error" message 58, which informs the preceding ND 14 (e.g., ND9) (or the NC 24) that the routing operation failed).

Gutierrez fails to specifically disclose generating the message using a creation condition according to a second route other than the first route matching the possible disconnection state and originating the message.

However, Cain discloses generating the message using a creation condition according to a second route other than the first route matching the possible disconnection state and originating the message (paragraphs [0015], [0018], [0033], e.g., at the source node, intermediate nodes and/or the destination node, detecting whether the node can continue to support the route request and, if not, generating an error notification for a failed route. Upon receiving the error notification, the source node will purge the failed route from the discovered routes, and preferably distribute message data among remaining discovered routes).

Therefore, taking the teachings of Gutierrez in combination of Cain as a whole, it would have been obvious to one having ordinary skill in the art at the time of the invention by applicant to generate the message using a creation condition according to a second route other than the first route matching the possible disconnection state and originating the message for advantages of improving reliability.

Regarding claim 38 is rejected with the same reasons set forth in claim 30.

Regarding claim 39 is rejected with the same reasons set forth in claim 31.

Regarding claim 40 is rejected with the same reasons set forth in claim 32.

Claim 42 is drawn to A computer readable medium on which is recorded a program which, when executed in a communication terminal device, directs the communication terminal device to mediate between a first communication terminal as a transmission origin and a second communication terminal as a transmission destination and, based on a message originated from the first communication terminal to the second communication terminal, create routes to the communication terminal as transmission origin, the program comprising code means generating steps of claim 36. Therefore, the same rationale applied to claim 36 applies. In addition, Gutierrez/Cain inherently discloses a computer program product, i.e., given that Gutierrez discloses a process (paragraph [0040], [0049], [0098]), the process would be implemented by a processor that requires a computer program product, e.g., a RAM, to function.

Claim 43 is drawn to a computer readable medium on which is recorded a program which, when executed in a communication terminal device, directs the communication terminal device, based on a message originated from itself to a first communication terminal as a transmission destination, to create a routes to itself by means of a second communication terminal mediating between itself and the first communication terminal and to communicate with the first communication terminal via one of the created routes, the program comprising code means generating steps of claim 41. Therefore, the same rationale applied to claim 41 applies. In addition, Gutierrez/Cain inherently discloses a computer program product, i.e., given that Gutierrez discloses a process (paragraph [0040], [0049], [0098]), the process would be implemented by a processor that requires a computer program product, e.g., a RAM, to function.



***Conclusion***

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TIMOTHY PHAM whose telephone number is (571)270-7115. The examiner can normally be reached on Monday-Friday; 7:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vincent P. Harper can be reached on 571-272-7605. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ Timothy Pham/  
Examiner, Art Unit 2617

/VINCENT P. HARPER/  
Supervisory Patent Examiner, Art Unit  
2617